

Response to Office Action of 09/22/2005
Attorney Docket No. 1036-02-PA-T

REMARKS/ARGUMENTS

This paper is submitted in response to the Office Action mailed September 22, 2005. A Request for a One Month Extension of Time under 37 CFR 1.136(a) is submitted herewith, along with the fee prescribed by 37 CFR 1.17(a)(1). The response is therefore timely.

In response to the Office Action, claims 1 and 4 have been amended, and new claim 10 has been added. Reconsideration is respectfully requested.

Objection to the Drawings

The drawings were objected to on the following grounds: (1) The "pressure limiter" recited in claim 7 is not shown in the drawings; and (2) the element "51" shown in Fig. 1 is not mentioned in the specification. It is respectfully submitted that amendment of the drawings is not necessary, inasmuch as the element 51 shown in Fig. 1 is the "pressure limiter" recited in claim 7 and described in the specification, under the "Summary of the Invention," at page 3, lines 17-20. Accordingly, the specification has been amended to include a description of the element 51 as a pressure limiter under the heading "Detailed Description." No new matter has been added.

The specification has also been amended to link the "shut-off valve" described at page 7, lines 1-3 with the element 23 in Fig. 1. Again, no new matter has been added.

Rejections under Sections 102 and 103

Claims 1-9 were examined, and all were rejected. Claims 1, 6, and 8 were rejected under 35 U.S.C. §102(b) as anticipated by US 4,177,801 – Grangirard et al. Claims 1, 4, and 7-9 were rejected under 35 U.S.C. §102(b) as anticipated by US 5,181,517 – Hickey. Claims 2 and 3 were rejected either under 35 U.S.C. §102(b) or 35 U.S.C. §103(a) as unpatentable over Hickey. Claim 5 was rejected under 35 U.S.C. §103(a) as unpatentable over Hickey in view of US 4,740,203 – Hoskins et al. Finally, claims 1-9 were rejected on the grounds of obviousness-type double patenting as unpatentable over claims 1-7 of US 6,146,357.

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The rejection on the grounds of double patenting is overcome by the Terminal Disclaimer submitted herewith under 37 CFR 1.321(c). As explained below, it is respectfully submitted that claims 1-9, as amended, and new claim 10, now define patentably over the cited references.

Claim 1 has been amended to define the first balloon as "configured for insertion into a blood vessel or body cavity having an internal wall, the first balloon being inflatable through a first inflation lumen," and to define the second balloon as "disposed outside the blood vessel or body cavity, and that is inflatable through a second inflation lumen." As explained below, it is respectfully submitted that claim 1, as amended, now defines patentably over the art of record.

The Grangirard et al. reference discloses a blood pressure measuring system comprising an inflatable cuff 1, fluidly connected, via a pair of lumens 2a, 2b, to opposite sides of a differential pressure gauge. The Examiner contends that a portion of the tube branch 2b is an inflatable element, and thus can be considered a "second balloon." Applicant respectfully disagrees with this view of the reference, since there is no suggestion that any portion of the tube 2b is inflatable. Nevertheless, Claim 1, as amended, now defines the first balloon as being "configured for insertion into a blood vessel or body cavity." This is in contrast to the cuff 1 in Grangirard et al., which is specifically designed for external placement. Claim 1 has been further amended to define the pressure gauge as comparing the detected pressures in the first and second balloons "when the first balloon is inflated so as to engage the internal wall of the vessel or cavity." There is nothing in Grangirard et al. to suggest that any element is inflatable so as to engage the internal wall of a vessel or cavity. Therefore, the reference cannot anticipate the invention defined in claim 1.

In fact, Grangirard et al. neither discloses nor suggests any inflatable element that is configured or structured for insertion inside a bodily vessel or cavity, in keeping with the goal of "non-intrusive" measurement of blood circulation parameters. Thus, the reference teaches away from the claimed invention, which is explicitly defined in claim 1 as intrusive. Therefore the claimed invention cannot be deemed "obvious" in view of this reference.

Hickey discloses a pressure measurement system comprising first and second balloons, but both balloons are 24, 150 are inserted into the same bodily passage (i.e., the esophagus), as shown in Fig. 13, and as described at column 11, line 48 to column 12, line 24. This is in contrast with the invention defined in claim 1, as amended, in which the second balloon is explicitly defined as "disposed outside the blood vessel or body cavity." Placing the second or "bias"

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balloon 150 of Hickey outside of the body would be contrary to its stated purpose of “eliminating respiratory artifact” within the esophagus, which it does by “reflect[ing] esophageal pressure and thus record[ing] the respiration induced fluctuation in esophageal pressure” (column 11, line 65 to column 12, line 1). This function would be impossible to perform if the second balloon 150 in Hickey were disposed outside the body, as defined in claim 1. Thus, claim 1, by defining the second balloon as being located outside the vessel or cavity in which pressure is being measured, is neither anticipated nor rendered obvious by Hickey.

In short, the Grangirard et al. reference has no teaching or suggestion of an inflatable element that is insertable into the body, while Hickey teaches two balloons, both of which must be located within the same vessel or cavity. Accordingly, neither reference, either by itself or in combination with any other art of record, teaches or suggests a pressure measuring apparatus comprising a first balloon within a vessel or cavity and a second balloon outside the vessel or cavity, as defined in claim 1, as amended. Therefore, it is respectfully submitted that claim 1, as amended, is patentable over the art of record.

Claims 2-10 depend from claim 1 and further define the novel and non-obvious aspects of the claimed invention. Claim 4 has been amended to make its terminology consistent with that of amended claim 1. New claim 10 has been added to define the novel aspect of a pump mechanism that simultaneously inflates both balloons at the same inflation rate. It is respectfully submitted that these claims define patentably over the art of record, and should therefore be allowed, along with claim 1, from which they depend.

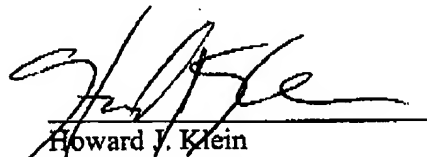
In summary, it is respectfully submitted that claims 1-10, as amended, define patentably over the art of record, taken singly or in any combination that might suggest itself to those skilled in the pertinent arts. Therefore, allowance of claims 1-10 is respectfully requested, and passage of the application to issue is earnestly solicited.

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Should there be any further issues to be resolved, the Examiner is respectfully requested to telephone the undersigned attorney to expedite the prosecution of the application to issue.

Respectfully submitted,

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